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ABSTRACT

This brochure was developed as part of a national education program whose mission is to educate wildland user groups, federal agencies, and the public about minimum impact camping. The brochure lists principles for conservation of the environment in outdoor activities and discusses conservation techniques to minimize impact in backcountry and wilderness areas. The principles of the program concern: (1) backcountry trip planning and preparation; (2) concentrating impacts in high use areas; (3) spreading use and impact in pristine areas; (4) avoiding places where impact is just beginning; (5) picking up and packing out all litter; (6) properly disposing of waste; (7) leaving what you find; and (8) the proper use of campfires. Technical details are offered for making judgments about how to minimize impact and the rationale behind recommended practices. (LP)

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LEAVE NO TRACE

Outdoor Skills & Ethics

National Outdoor Leadership School

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Outdoor Skills & Ethics

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Wildland Ethics

"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." Aldo Leopold, *A Sand County Almanac*.

Forester and philosopher Aldo Leopold expressed this sentiment in the 1930s. Today increasing numbers of backcountry visitors are coming to the same realization as they witness their favorite wilderness haunts being loved to death by recreationists seeking adventure and solitude. This booklet is part of a national educational program called Leave No Trace, whose mission is to educate wildland user groups, federal agencies and the public about minimum-impact camping. But the principles and practices discussed here are meaningless as a set of rules and regulations. They must be based on an abiding respect for and appreciation of wild places and their inhabitants. Only then can these principles be tempered with the judgment necessary to apply them in the myriad of circumstances in which we find ourselves every time we venture beyond the trailhead.

Simple living, adventure and solitude can still be part of our backcountry travels, but in order to assure their continued existence we must take the responsibility to educate ourselves and to become equipped with tools and skills that enable us to Leave No Trace.

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LEAVE NO TRACE
Principles & Practices

developed by the
National Outdoor Leadership School

1 • Backcountry Trip Planning and Preparation

4 • Concentrate Impacts in High Use Areas

6 • Spread Use and Impact in Pristine Areas

8 • Avoid Places Where Impact is Just Beginning

9 • Pack It In, Pack It Out

10 • Properly Dispose of What You Cannot Pack Out

12 • Leave What You Find

13 • Campfire Building in the Backcountry

Since 1965, the National Outdoor Leadership School has pioneered the teaching and development of practical conservation techniques designed to minimize impact. These conservation practices are now incorporated into the national Leave No Trace education program as the following Leave No Trace Principles:

Principles of Leave No Trace

- **Backcountry Trip Planning and Preparation**
- **Concentrate Impacts in High Use Areas**
- **Spread Use and Impact in Pristine Areas**
- **Avoid Places Where Impact is Just Beginning**
- **Pack It In, Pack It Out**
- **Properly Dispose of What You Cannot Pack Out**
- **Leave What You Find**
- **Campfire Building in the Backcountry**

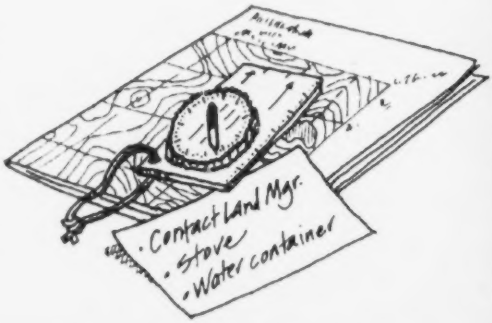
These principles are recommended as a guide to minimizing the impact of your backcountry visits. This pamphlet discusses factors to consider under each principle when making judgments about how to minimize impact and the rationale behind recommended practices. Before traveling into the backcountry, we recommend that you check with local officials of the Forest Service, Park Service, Fish and Wildlife Service, Bureau of Land Management or other managing agency for advice and regulations specific to the area.

Leaving no trace depends more on attitude and awareness than on rules and regulations. Low impact camping practices must be flexible and tempered by judgment and experience. Consider the variables of each place—soil, vegetation, wildlife, moisture level, the amount and type of use the area receives and the overall effect of prior use—then use these observations to determine which practices to apply. Minimize your impact on the land and on other visitors, but be sure to enjoy your visit as well.

Backcountry Trip Planning and Preparation

Unnecessary impact in backcountry areas can be avoided by carefully preparing for your trip. For example, if backcountry users do not have the proper clothing to stay warm and comfortable in an unexpected snow storm they may be forced to build large highly impacting fires in areas where they should not be built. Proper preparation includes: knowing what to expect, repackaging food supplies, having the proper equipment and knowledge about the area you plan to visit.

Expectations. Taking time to think about what you expect from your trip will help you prepare for it. If you know the area you are visiting is remote and sees few visitors then you should be prepared to camp in pristine areas and practice stringent Leave No Trace techniques. Conversely, in popular highly visited areas you can expect to see more people and should camp in existing campsites. As part of your planning check with the land managers for information and suggestions on your route.



Repackage food. Plan your meals carefully and repackage food into reusable containers or plastic bags. This will reduce the amount of potential trash or litter you bring into the backcountry, and carefully planned rations reduce waste from leftovers.

Equipment. Taking the proper equipment can help you to Leave No Trace. For example, gaiters that protect your feet and boots will allow you to stay on the main trail when they are wet or muddy from melting snow or rain. Lightweight campstoves and water carrying containers allow the flexibility to camp in the most impact resistant site available.

One choice when selecting clothing and other equipment such as tents and backpacks is color. Brightly colored clothes and equipment have limited advantages in the backcountry, despite their great appearance in store windows. To minimize the likelihood that others will see you and your camp,

attempt to wear and carry earth-colored clothes and equipment, particularly tents.

Knowledge of the Area. If possible, visit the backcountry during seasons or days of the week when use levels are low. This should be tempered with a concern for avoiding travel when the environment is particularly fragile (for example, during snow melt when trails are muddy). Similarly, by visiting places that receive little use, contact with others is minimized. Again, this should be tempered by a concern for avoiding disturbance of such little-used and little-impacted places. Large groups can disturb these places rapidly.

Concentrate Impacts in High Use Areas

Concentrating use in popular or high use areas is a simple and effective method to reduce the impact of a backcountry visit. In the backcountry, main travel corridors and popular destinations typically will have well established trails and campsites.

Respect other visitors' need for solitude. When traveling in the backcountry, care is required to minimize disturbance of other visitors. This disturbance is minimized when contacts are infrequent, party size is small and behavior is considered appropriate by others. Travel quietly in the backcountry, whether hiking by trail or cross-country. Others will appreciate the solitude.

Respect wildlife. By traveling quietly you will be more aware of your environment, and wildlife will be less disturbed. Respect birds' and animals' needs for undisturbed territory. After all, the backcountry is their home. When tracking wildlife for a photograph or a closer look, stay downwind, avoid sudden movement and never chase or charge any animal. Give the wildlife plenty of space, for their safety and yours.

Hike on existing trails. Impacts on wildlife, soil and vegetation can be minimized by walking on constructed trails that are already highly disturbed and in many cases have been designed to accommodate heavy use. When following existing trails, walk single-file on the designated path. Walking outside the tread, to walk abreast or to avoid rocks or mud, breaks down the trail edge and widens the trail. It can also lead to

the development of multiple trails. Muddy stretches and snow banks should be crossed, rather than skirted, to avoid creation of additional paths. Shortcutting switchbacks causes erosion and gullying. If a trail is impassable, walk on hard surfaces (such as rock, sand or snow) as much as possible and notify the agency officials responsible for that area.

Rest breaks. When taking a break along the trail, move off the trail some distance to a durable stopping place. Here you can enjoy more natural surroundings and other parties can pass by without contact. Durable stopping places include rock outcrops, sand, other non-vegetated places and sites with durable vegetation, such as dry grasslands.

Encountering horses. When you meet a stock party on the trail, allow them plenty of room as stock are frightened easily. The entire party should move off to the same side of the trail, if possible the downhill side, and stand quietly until the stock party passes. Sometimes it helps to talk in a low voice to the first rider so the horses have advance notice of your presence.

Choosing a high use campsite. Selecting an appropriate campsite is perhaps the most important aspect of low impact backcountry use. It requires the greatest use of judgment and information and often involves making trade-offs between minimizing ecological and social impacts. A decision about where to camp should be based on information about the level and type of use in the area, the fragility of vegetation and soil, the likelihood of wildlife disturbance, an assessment of previous impacts and your party's potential to cause or avoid impact.

Avoid camping close to water and trails and select a site which is not visible to others. Even in popular areas the sense of solitude can be enhanced by screening campsites and choosing a more out-of-the-way site. Also, be sure to obey any regulations in the area related to campsite selection. Allow enough time and energy at the end of the day to select an appropriate site. Tiredness, bad weather and lateness of the day are not acceptable excuses for choosing a poor or fragile campsite.

Generally it is best to camp on sites that are so highly impacted that further careful use will cause no additional impact. In popular areas these sites are obvious because they have already lost their vegetation cover. It may also be possible to find a site which naturally lacks vegetation, such as exposed bedrock or sandy areas.

On high impact sites, tents, traffic routes and kitchen areas should be concentrated on already impacted areas. The objective is to confine impact to places which already show impact and avoid enlarging

the area of impact. When leaving camp, make sure that it is clean, attractive and will be appealing to other campers who will follow.

Spread Use and Impact in Pristine Areas

Pristine areas are typically remote, seldom visited and have few obvious impacts from camping. Consider the trade-off of ecological impacts when deciding whether to travel by trail or cross-country. Visit pristine areas only if you are committed to and knowledgeable in the specific techniques required to Leave No Trace.

Hike in small groups. The impacts associated with crosscountry travel are minimized when group size is small, routes are carefully selected to avoid fragile terrain and critical wildlife habitat, and special care is taken to avoid disturbance. If you are traveling with a large group, hike in groups of no more than 4-6 people.

Cross-country travel is undesirable where user-created trail systems are developing, in wet places, on steep and unstable slopes, on crusted desert soils, and in places where wildlife disturbance is likely. It is most desirable on rock, sand, snow and ice, or stable non-vegetated surfaces.

When traveling cross-country it is generally best to spread out rather than have everyone follow the same route. This will minimize the amount of trampling any one spot. receives and avoid the creation of undesired trails. In some places it is not practical to spread out; avoid such routes if other groups are likely to follow your footsteps, particularly if incipient paths are developing. In extremely fragile places, such as desert cryptogam soils, it is best to walk single-file so only one trail is created. Cross-country travel should be avoided in such fragile places.

Choosing a pristine campsite. When selecting an undisturbed site, choose one that either has no vegetation or a durable vegetation cover. Camp away from trails, other campers, lakes, streams and critical wildlife habitat. Avoid "beauty spots" that might attract other campers. Select a site well away from high impact areas that shows no evidence of previous use and is unlikely to be used after you leave.

Durability of the ground surface is the most important consideration in determining exactly where to set up tents and the kitchen. Non-vegetated areas such as slickrock, rock outcrops, gravel bars, beaches and snow are best. Forest duff is acceptable if it is possible to avoid crushing any plants or seedlings (forest-floor vegetation is highly fragile). Grassy areas and dry meadows can also make good pristine campsites. They are quite resistant and capable of recovering rapidly from the effects of one night of low impact use. When deciding whether or not to camp in a meadow, consider whether you will impact other users or wildlife.

Camping in remote areas. On pristine sites it is best to spread out tents, avoid repetitive traffic routes and move camp every night. The objective is to minimize the number of times any part of the site is trampled. In setting up camp, disperse tents and the kitchen on durable sites. Wear soft shoes around camp. Minimize activity around the kitchen and places where packs are stashed, and watch where you walk to avoid crushing vegetation. Take alternate paths to water and minimize the number of trips by carrying water containers. Check the regulations, but camping 200' from water is a good rule of thumb.

When breaking camp, take time to naturalize the site. Covering scuffed up areas with native materials (such as pine needles), brushing out footprints and raking matted grassy areas with a stick will help the site recover and make it less obvious as a campsite. This extra effort will help hide any indication that you camped there and make it less likely that other backcountry travelers will camp in the same spot. The less often a pristine campsite is used the better chance it has of remaining pristine.

Avoid Places Where Impact Is Just Beginning

Most campsites can withstand a certain level of use which will still allow the site to recover. However, a threshold is eventually reached where the regenerative power of the vegetation cannot keep pace with the amount of trampling. Once this threshold is reached the site will deteriorate more rapidly with continued use. This will result in the development of an established campsite with a discernible "barren core." The threshold for a particular site is affected by many variables including climate, soil type, elevation and aspect.

Hike on durable surfaces. Seek out durable surfaces when traveling cross country, such as bedrock, sandy or gravel areas, or snow. On these surfaces it is not important to spread out. Use care when ascending or descending steep slopes. If slopes are so steep that it is necessary to dig toes and heels into the soil to get a grip, some other route should be located. Either look for durable surfaces or spread out.

Avoid sites and trails that show slight signs of use. Campsites which show slight but established use are best left alone. In remote pristine areas, camp on a previously unused site, and in a popular area, select a campsite which is well established.

In pristine areas, adhere to the hiking practices described earlier and either spread out or hike on durable surfaces. Many times faint user created trails are formed without consideration of the potential damaging effects of erosion. Once they are established and the top soil is worn away the damage caused by running water increases the likelihood of the trail becoming permanent. As with slightly used campsites, avoiding faint trails will allow them to gradually recover.

Allow time for recovery. Often, lightly used campsites and trails have not been so heavily damaged that they cannot recover. Over the course of time and non-use these campsites and trails will revegetate and revert back to their natural appearance. By spreading out while hiking and camping on durable surfaces in remote areas and staying on well established trails and campsites in popular areas, it is possible to minimize or prevent the proliferation of many unnecessary user created campsites and trails.

Pack It In, Pack It Out

Pick up and pack out all of your litter. Burying or leaving trash and litter in the backcountry is unacceptable. On the way out—when your pack is light—try to pick up litter left by others.

Reduce litter at the source. When preparing for your trip, repackage food into reusable containers or remove any excess unnecessary packaging. This simple practice lessens the likelihood that you will inadvertently leave litter behind.

Trash. Trash is the inorganic waste brought into the backcountry, usually from over-packaged products. It is best to get in the habit of packing out all your trash. Some paper trash items can be burned in a campfire, but much of the paper packaging used today is lined with non-burnable foil or plastic. Other items such as tin and aluminum cans, plastic, tin foil and glass are not burnable and must be packed out.

Garbage. Garbage is organic waste leftover from cooking. This type of waste can be easily reduced by careful planning and preparation of meals. Food scraps should be picked up from around the kitchen area and packed out. Careful meal planning will reduce the amount of leftovers, but in the event you have some it should be either saved and eaten later or put in a plastic bag or other container and packed out. Burning and burying this type of waste are ineffective and inappropriate methods of disposal. It requires a very hot fire to burn garbage thoroughly, and animals will dig it up if buried. Keeping food waste away from animals is important so they do not become habituated to people as a food source and their normal activities are not disrupted.

Consider the words "Leave No Trace" a challenge to take out everything that you brought into the backcountry.

Properly Dispose of What You Can't Pack Out

Visitors to the backcountry create certain types of waste which cannot be packed out. These include human waste and waste water from cooking and washing.

Human waste. Proper disposal of human waste is important to avoid pollution of water sources, avoid the negative implications of someone else finding it, minimize the possibility of spreading disease and maximize the rate of decomposition. Burying human feces in the correct location and manner is the most effective method to meet these criteria.

Contrary to popular opinion, recent research indicates that burial of feces actually slows decomposition (at least in the Rocky Mountains). Pathogens have been discovered to survive for a year or more when buried. However, in light of the other problems associated with feces, it is still generally best to bury it in the ground. The slow decomposition rate emphasizes the need to choose the correct location, far from water, campsites and other frequently used places.

Catholes. Catholes are the most widely accepted method of waste disposal. Locate catholes at least 200 feet from water, trails and camp. Two hundred feet is about 70 steps for an adult. Select a site which is inconspicuous, where other people will be unlikely to walk or camp. With a small garden trowel dig a hole 6-8 inches deep and 4-6 inches in diameter. When finished the cathole should be covered and disguised with natural materials. If camping in the area for more than 1 night or if camping with a large group, cathole sites should be widely dispersed.

Latrines. Though catholes are recommended for most situations, there are times when latrines may be more applicable, such as when camping with young children or if staying in one camp for longer than a few nights. Use similar criteria for selecting a latrine location as those used to locate a cathole. Since this higher concentration of feces will decompose very slowly location is especially important.

8

Toilet Paper. Use toilet paper sparingly and use only plain, white, non-perfumed brands. Toilet paper must be disposed of properly! It should either be thoroughly buried in a cathole or placed in plastic bags and packed out. NOLS has used "natural" toilet paper for years and advocates its use in most situations. When done correctly, this method is as sanitary as regular toilet paper, but without the impact problems. Popular types of natural toilet paper include stones, vegetation and snow. Obviously some experimentation is necessary to make this practice work for you, but it is worth a try!

Urination. Urination has little direct effect on vegetation or soil. In some instances urine may draw wildlife which are attracted to the salts. They can defoliate plants and dig up soil. It is best to urinate on rocks and in places where urine is unlikely to attract wildlife.

Waste water from cooking. Soap is unnecessary for most dish washing jobs. It is often difficult to rinse thoroughly and introduces unnatural chemicals to the backcountry. Hot water and a little elbow grease can tackle most cleaning chores. Waste water should be scattered over a wide area away from camps and all water sources. Remove all food particles from the water before disposing of it and pack them out with excess food and other litter. If you are in grizzly bear country or expect to create large amounts of waste water, it may be best to concentrate it in a sump hole.

Waste water from washing. The primary consideration when washing yourself or your clothes is to avoid contamination of water supplies. Soap must not enter lakes or streams, so it is best to minimize its use. If bathing with soap is necessary, get wet, lather up on shore far from water (200') and rinse off with water carried in a pot. This procedure allows the biodegradable soap to break down and filter through the soil before reaching any body of water. Clothes can be cleaned by thorough rinsing. Soap is not necessary and residual soap can cause skin irritation.

Fish viscera. Fish viscera are generally a natural part of the ecosystem. In remote areas they should be scattered widely, out of sight and away from campsites. In high-use areas and in bear country they should be scattered a long way from camps, or buried cathole-fashion a half mile or more from camp. Do not throw viscera back into lakes and streams (unless bear danger is high and viscera can be thrown into deep water); the cool temperatures in most mountain waters prevent rapid decomposition.

Leave What You Find

Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts and other objects of interest as you find them.

Minimize site alterations. On all sites, leave the area as you found it. Do not dig trenches for tents or construct lean-tos, tables, chairs or other rudimentary improvements. If you clear the area of surface rocks, twigs or pinecones, replace these items before leaving. On high impact sites, it is appropriate to clean up the site and dismantle inappropriate user-built facilities, such as multiple fire rings and constructed seats or tables. Consider the idea that good campsites are found and not made.

Properly-located and legal facilities, such as a single fire ring, should be left. Dismantling them will cause additional impact, because they will be rebuilt with new rocks and thus impact a new area.

Avoid damaging live trees and plants. Avoid hammering nails into trees for hanging things, hacking at them with hatchets and saws, or tying tent guy lines to trunks and thus girdling the tree. The cutting of boughs for use as a sleeping pad creates minimal benefit and maximum impact. Inexpensive sleeping pads are readily available at stores catering to backcountry travelers.

Picking a few flowers does not seem like it would have any great impact. If only a few flowers were picked it wouldn't, but if every visitor thought "I'll just take a few," a much more significant impact might result. Take a picture or sketch the flower instead of picking it. Enjoy an occasional edible plant, but be careful not to deplete the surrounding vegetation or to disturb plants that are either rare or do not reproduce in abundance.

Leave natural objects and cultural artifacts. Natural objects of beauty or interest, such as antlers or petrified wood, are appealing when you find them in the backcountry and should be left for others so that they too can experience that sense of discovery. In National Parks and some other areas it is illegal to remove natural objects.

The same ethic is applicable to the discovery and removal of cultural artifacts found on public land.

Cultural artifacts are protected by the Archaeological Resources Protection Act, and it is illegal to remove artifacts from *any* public lands. This act protects all artifacts ranging from seemingly insignificant potsherds and arrowheads to ornate pots and clothing items.

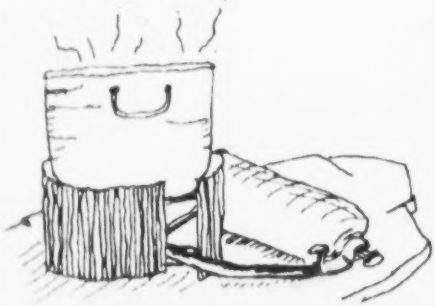
Campfire Building in the Backcountry

The use of campfires in the backcountry was once a necessity and is now steeped in history and tradition. This tradition is so entrenched in our minds that for some the thought of going on a backcountry camping trip and not having a fire is almost unthinkable. However, a new attitude is developing toward campfires. This attitude is a direct result of the past misuse of campfires and the ugly scars caused when fires are built incorrectly or built in the wrong places.

Fires vs stoves. Though cooking on a fire is a skill and an art, backcountry visitors should not embark on a trip intending to do all cooking on fires. A lightweight gas stove is essential equipment for any overnight backcountry trip, no matter how long or short. The use of a stove for cooking allows the greatest degree of flexibility in selecting a low-impact campsite and avoids the problem of building fires in inappropriate places.

The most important factors in determining whether or not to have a fire are:

1. The availability of the right amount and type of firewood
2. Wind conditions and overall fire danger
3. Administrative restrictions.



Firewood selection and gathering. There is only one type of wood which is acceptable for building a low impact campfire—dead and downed wood. Do not break dead branches off live standing trees; this leaves a very discernible and long lasting impact. Breaking branches off downed or fallen trees makes a subtle distinction from the term dead and downed wood. This is not an acceptable source of firewood. There is a certain aesthetic appeal

to a large fallen tree laying on the forest floor with its branches aimed skyward.

The size of firewood is critical to building a Leave No Trace fire. Firewood should be no larger in diameter than an adult's wrist. The burning of this smaller firewood has a very small effect on the ecology of the forest, because it is not large enough to significantly contribute nutrients to the forest. Large rotting trunks, on the other hand, are significant and should be left alone. These downed trunks provide crucial habitat to a variety of insects and other creatures and return nutrients to the soil.

Firewood should be gathered from a wide area, not just in the immediate vicinity of camp. Take the time to walk 15 or 20 minutes away and then begin to gather the wood. Pick up the wood as you are walking so that no single place becomes devoid of wood.

In all campfire situations, the use of saws, axes and hatchets is unnecessary. Sawing and chopping leave more impact and further detract from the naturalness of the area. Small firewood can easily be gathered by hand.

Care and feeding of your fire. Keep the wood in its natural lengths. When feeding the fire, break the wood into burnable lengths as needed. If there is any unburned wood left when breaking camp it can be scattered around the forest and will blend in naturally.

All firewood should be burned down to white ash or very small coals. Doing this may require some extra time, but is a significant step in minimizing the impact of the fire. All fires should be cleaned up before breaking camp.

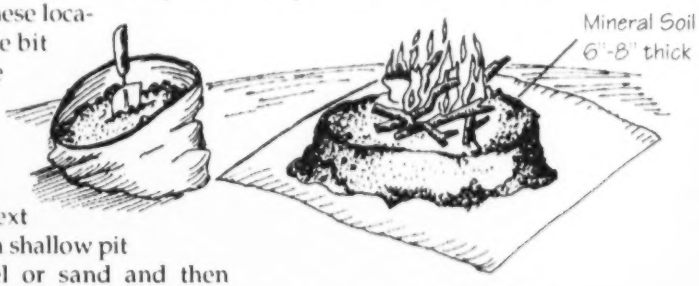
Fires in high use areas. In high use areas, where impacts should be concentrated, campfires should be built in existing fire rings. In these sites, it is almost a sure bet that there will be a fire ring present when you arrive. If there is still abundant firewood, build your fire in the existing ring.

One of the simplest alternatives to rock fire rings is to build a fire right on the ground surface. In highly visited, high-impact campsites where the vegetation has long been removed and the ground is compacted to almost a concrete surface, this is a perfectly acceptable practice. The ground under the fire may become a little blackened, but that is of little concern if every visitor builds his or her fire in the same spot.

In popular campsites which will be used by many people during a season the intent is to get other campers to use the same fire ring. Cleaning up the fire ring of food waste and trash plus burning wood completely and scattering the coals and ashes when out, will make it more likely that it will be used again. This helps avoid the proliferation of multiple fire rings in a popular site.

Fires in pristine areas. In remote or pristine areas, it is possible to enjoy a fire and Leave No Trace that it was ever there. The development of techniques for these types of fires has evolved over the years to the point that there are some very practical alternatives to the traditional fire ring.

When camping near large rivers or creeks, building a fire on exposed gravel bars well below the high water line is an acceptable practice. In these locations the little bit of evidence left behind after clean up will be swept away by the next flood. Scoop a shallow pit in the gravel or sand and then cover those last little bits of charcoal to hide any sign of the fire until the next high water. Whenever building a fire near water, it is important to take care to keep any food or waste products from entering the water source if you are cooking on the fire.



In pristine areas away from water sources, any areas of exposed mineral soil can be used for fires in the same method as described above. Be sure there is no small inconspicuous vegetation growing in the mineral soil. Mineral soil is a term used to describe dirt which contains no organic material. Fires built in non-mineral soil will blacken it by burning the organic material. Fires built in pits dug in organic soil risk the chance of forest fire. The heat from the fire can ignite the organic material which can burn underground and flare up into a forest fire under the right circumstances.

When building a campfire in a more remote area, special care and extra effort must be taken to obliterate any sign that there was a fire. By burning wood completely it will be possible to scatter the cold ash and small coals around the area. Fire is a natural process in the forest and a few small coals will not be noticed.

The mound fire: An innovative method for building a Leave No Trace fire is the mound fire. Mound fires can be built virtually anywhere and with simple tools: a garden trowel, large stuff sack and a ground cloth.

This type of fire is constructed by first locating a ready source of mineral soil. The best places are stream beds where dry gravel is accessible during low water or from the cavity left when a tree is blown over. The key concept to remember is to

gather the mineral soil from a spot which is already disturbed by the forces of nature and where the impact of digging and collecting the mineral soil will not damage live vegetation.

With the garden trowel and stuff sack (turned inside out to keep the inside of the bag clean), carry a load of mineral soil to the fire site. Lay a tarp or ground cloth on the fire site and then spread the soil into a circular, flat-topped mound about 6 - 8 inches thick. The ground cloth is important only in that it makes cleaning up the fire much easier and adds some degree of flexibility to the system. At NOLS we have been using retired forest fire emergency shelters cut into 3x3 foot squares on which to build mound fires. They are light weight and durable and will not melt from the heat of the fire.

The thickness of the mound is critical for insulating the surface underneath from the heat of the fire. This will also prevent the nylon ground cloth from melting if one is used under the mound. The circumference of the mound should be larger than the size of the fire to allow for the inevitable spreading of coals. It may take more than one bag of soil to make an adequate mound.

After the fire is out and you are ready to break camp, the little bit of ash and coals which are left can be scattered away from camp and the mineral soil returned to the source.

The beauty of this type of fire is that it can be built on flat exposed bedrock or on an organic surface such as litter, duff or grass. Even with a thick mound, sometimes the heat generated can be enough to kill grass or other plants, but it is only temporary and does not sterilize the soil the way a traditional fire can.

Portable fire pans: Another alternative which is becoming more popular is the portable fire pan. Fire pans were first used by river runners to minimize the impact of their fires. Some backcountry hikers have been known to carry a fire pan with them on hiking trips. There are now companies building and marketing portable fire pits. These are small lightweight stoves which require very small amounts of fuel and can burn as hot as a gas powered stove. They can also burn almost anything! One model burns dried cow dung. These stoves can be used in place of gas stoves as long as you know there will be a ready supply of fuel. They also burn very completely and the result is a small tray of fine ash which is easily dispersed.

LEAVE NO TRACE

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Information & Materials

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